

# **Hawaii Observer Program**

## **Bottomfish Field Manual**



**MARCH 2003  
(updated 14 Apr 2004)**

**Manual Version BM.03.03.04.04.14**

**Pacific Islands Region  
National Marine Fisheries Service  
National Oceanic and Atmosphere Administration  
United States Department of Commerce**





Table of Contents

INTRODUCTION .....	6
BOTTOMFISH OBSERVER AUTHORITY AND GOAL .....	6
BOTTOMFISH OBSERVER OBJECTIVES .....	6
GUIDELINES .....	6
RESPONSIBILITIES .....	7
DATA COLLECTION INSTRUCTIONS .....	9
GENERAL .....	9
PHOTOGRAPHS .....	10
DATA COLLECTION PRIORITIES .....	10
TRAVEL RESPONSIBILITIES .....	11
TRIP LOG .....	12
INTRODUCTION and GENERAL INSTRUCTIONS .....	12
DATA ELEMENTS .....	12
BOTTOMFISH TRIP LOG Example .....	14
BOTTOMFISH PROTECTED SPECIES LOG .....	15
INTRODUCTION and GENERAL INSTRUCTIONS .....	15
DATA ELEMENTS .....	15
BOTTOMFISH PROTECTED SPECIES LOG Example .....	21
BOTTOMFISH GEAR AND CATCH LOG .....	22
INTRODUCTION and GENERAL INSTRUCTIONS .....	22
DATA ELEMENTS .....	22
BOTTOMFISH GEAR & CATCH LOG Example .....	27
TROLL LOG .....	29
INTRODUCTION and GENERAL INSTRUCTIONS .....	29
DATA ELEMENTS .....	29
TROLL LOG Example .....	31
BOTTOMFISH SPECIES CODE LIST .....	33
Fish (Ia) 100 - 305 .....	33
Sharks (Manu) 400 - 441 .....	36
Rays (Hihi manu) 450 - 459 .....	37
Sea Turtles 500 - 506 .....	37
Birds (Mano) 600 - 677 .....	37
Cetaceans 700 - 759 .....	38
Pinnipeds 900 - 903 .....	40



## INTRODUCTION

### BOTTOMFISH OBSERVER AUTHORITY AND GOAL

The Northwestern Hawaiian Islands (NWHI) Bottomfish fishery targets deepwater snappers, groupers and jacks. This fishery is managed through a Fishery Management Plan (FMP) established by the Western Pacific Regional Fishery Management Council from authority of the Magnuson-Stevens Fishery Conservation and Management Act.

Because of the uncertainties of the levels of Hawaiian monk seal interaction, permit holders in this fishery are required to carry observers to document incidental take of protected species and the rate of interactions with fishing gear.

### BOTTOMFISH OBSERVER OBJECTIVES

To meet NMFS responsibilities, the following objectives are established for scientific technicians working as observers aboard bottomfish vessels operating in the NWHI:

- To obtain reliable information about the incidental interaction of Hawaiian monk seals and other protected species with fishing operations.
- To collect data on fishing effort.
- To collect catch and discard information.
- To process selected specimens for life history information.

### GUIDELINES

With **SAFETY** and **INTEGRITY** as the watchwords of your job, it is of primary importance that you conscientiously follow the guidelines outlined below:

✿ **It is your responsibility to observe and accurately record biological research data as instructed.** You are not to record extemporaneous comments, editorials or personal opinions. It is not your job to evaluate or interpret data; simply record objective observations on the data forms issued.

✿ **It is your responsibility to maintain open communication with the vessel operator** and other vessel personnel to facilitate a clear understanding as to what data are being collected. Everything you record is available to the vessel operator or his designate and is subject to legal interpretation. Almost everything you record may be made available to the public.

✿ **It is your responsibility to advise the vessel operator of all data items recorded.** If he or she is in disagreement with you, allow operators to record their views on the original data forms. If they so choose, the vessel operators may record their own comments on the original data forms.

✿ **As an observer, you are not an enforcement agent. You are not empowered to write citations, make arrests, or carry out enforcement activities.** Your responsibilities require that you make observations and collect data, some of which pertain to federal regulations. There is no guarantee that your data will not be used as evidence to assess penalties. Legal interpretation is performed by government attorneys.

✿ **Your responsibility of observing and recording data is to be performed in such a manner as to minimize interference with fishing operations.** Likewise, the vessel operator and any other vessel personnel are not to interfere with your duties.

## RESPONSIBILITIES

- Sea assignment readiness is determined by personal fitness, training preparation and staff assessments.
- Alcohol dependency and illicit drug use are incompatible with observer duties and are not tolerated. If detected, disciplinary actions may be initiated.
- Observers are not to keep personal diaries in any form during a cruise assignment. No recording devices are to be taken aboard vessels.
- Because observer objectives are mandated by federal regulations, personal research is prohibited aboard vessel assignments.
- Retaining specimens for personal reasons (ex. personal consumption) is prohibited.
- Intentionally entering the water from an assigned vessel is prohibited; such activity will compromise personal safety and data collection duties.
- Observers do not choose vessel assignments; however; **observers have the right to refuse deployment on a vessel they perceive as unsafe**. Management selects sea assignments through a predetermined sampling plan and confirms that the boats meet minimum U.S. Coast Guard safety requirements. Any refusal to board a vessel after an inspection must be documented and discussed with management to determine the appropriate course of action. Fishing activity dictates vessel departures and arrivals. Since vessel notification requirements limit response time, observers must be prepared for sudden sea assignments of extended and uncertain duration.
- An observer's vessel assignment continues until the vessel returns to port to unload.

Never leave your assigned vessel prematurely without approval from the Operations Coordinator, Port Coordinator or an acting designate; **to do so is grounds for dismissal.**

➤ Safeguard the return of your data to the port field station. Your work is a valuable investment; treat it like your wallet. **Data loss may be grounds for dismissal.**

Some of the information you will be collecting is sensitive, and not an appropriate topic of light conversation. Reports of mishandling of data and information will be investigated. **Incidents of gross mishandling may lead to dismissal.**

## DATA COLLECTION INSTRUCTIONS

### GENERAL

✿ **If the information requested on a data collection form is not available or not applicable, leave the data field or code box blank.**

✿ Write only with a soft (**No. 2**) pencil on all forms. An eraser may be used to correct errors made on the day of entry only. Any errors discovered after that time must be crossed out with a single line and the new entry written in **blue** pencil above the code block. Write a brief note in the margin explaining the change.

✿ **Print legibly.**

✿ Observe and accurately record descriptive, quantitative and objective data with explicit notes and explanations. Record data as events occur, trust nothing to memory.

✿ Record times as four digits using the 24 hour clock, for example, 5:30 P.M. is written as 1730, but 5:30 A.M. is written as 0530. Use Hawaii Standard Time.

✿ Record the two digits representing the day of the month. Record the three letter abbreviation for the month. Fill in the last two digits of the year in the blocks available. For example, September 26<sup>th</sup>, 2001 would be entered as 26 SEP 2001. Use this format for all dates.

 **PROTECTED SPECIES OBSERVATIONS ARE TOP PRIORITY.** Never allow collection of secondary data to interfere with the collection of protected species data. Refer to list of priorities on page 7 for further clarification.

✿ If data are not available in the proper units, write the measure and units in the margin or comments section for later conversion, for example, meters from fathoms.

✿ If additional space is required on a data form, continue data entries on additional forms. When notes are required use the space provided, or use the reverse side of the form, noting on the front that comments are on the reverse side.

Economic information is highly sensitive. Treat it with respect. Loose or cavalier handling of economic data may lead to undesirable consequences.

When writing notes or narrative explanations, **include all pertinent facts.** These forms will be read by other people who were not present when the event(s) you are describing happened. Don't assume that the readers will "automatically" know what you are ("really trying to say") describing, even if you didn't write it down. Stick to the facts, no personal comments.

## PHOTOGRAPHS

Cameras are used to help document involvement of protected species with bottomfishing activities. Photos of unidentified fish, birds, or marine mammals will be used for possible identification by others. Photograph specimens on deck, or at close range when possible. Compose photographs so that the vessel and crew remain anonymous. When photographing fish for identification purposes, avoid oblique views. Try to get the following views; full side, close up of head or anterior portion of the body, and a ventral view of anterior portion of body.

Identify specimen photographs on deck by printing the trip number, set number, specimen number and species, in large block letters on the back of a one-sided data form. If it is not possible to include this label with the animal being photographed, then immediately proceeding that photograph, compose a picture that contains the appropriate label only. Place the specimen, label and a meter stick against a plain background. Orient the camera perpendicular to the specimen to obtain a full side view and fill the viewfinder with the specimen, then take the picture. Record the camera and frame numbers on the appropriate data form and again on the Photo Log. Write the trip number on the camera.

## DATA COLLECTION PRIORITIES

**The observer's primary duty is to obtain reliable information about Hawaiian monk seal involvement in the fishery.** Therefore, a data collection hierarchy has been established and is described below. Observers are expected to know what to accomplish first. If work is interrupted or curtailed this list will help observers to prioritize their tasks.

**① Document and describe protected species events.**

- Species involved, and their activity.
- Photos/measurements of protected species.
- Describe how involved with fishing gear.

**② Collect fishing effort data.**

- Description of gear.
- Fishing locations and times.
- Catch rates.
- Retention/discard rates.

**③ Collect biological data.**

- Catch composition.
- Length frequencies.

**④ Additional data and samples as directed.**

- Biological samples (*e.g.* otoliths, ciguatoxin, stomachs).

## TRAVEL RESPONSIBILITIES

Conduct yourself in a courteous and professional manner. When departing from a port other than Honolulu, board your assigned vessel as soon as possible.

Keep your collected data in close possession at all times. Do not check data as baggage, nor mail original records. Remember your data are the result of a significant investment; treat it as you would your wallet; **do not entrust it with ANYONE EXCEPT program staff.**

**Keep receipts for all expenses incurred during a cruise.**

**If traveling to another port, call the contractor and notify them when you arrived and the intended departure of the vessel.**

If your assignment begins in a port other than Honolulu, or is interrupted by a port stop, ask the vessel operator if you may live aboard the vessel while it is in port. Under these circumstances, the vessel will be reimbursed for your room and board just as if it were at sea. If you can sleep aboard, but meals are not provided, ask the vessel operator for a signed note indicating which meals were not available. You will be reimbursed for the meals you need to purchase ashore.

You may be given additional information about allowable or reimbursable expenses from your contractor.

▶▶▶ **REMEMBER** ◀◀◀

**NO DATA**

**IS BETTER THAN**

**BAD DATA!**

## TRIP LOG

### INTRODUCTION and GENERAL INSTRUCTIONS

The Trip Log is used to record unique vessel characteristics and the specifics of the fishing trip. It is the only record of the vessel name, permit number and the name of the operator for a particular cruise. Without the information on this form, observer data from the cruise cannot easily be associated with a specific vessel or operator in order to protect privacy. This form is completed only once for each observed fishing trip.

The information required to complete this form is obtained by asking the vessel operator or from direct observation.

### DATA ELEMENTS

**Vessel Name:** Print in block letters the name of the vessel as it appears on the bow, transom or official records.

**Permit Number:** The six digit limited entry permit number as provided by the Operations Coordinator.

**Trip Number:** A number assigned by the Operations Coordinator. In the first two blocks enter **BF** for Bottomfish, fill in the rest with the trip number.

**Departure Date:** The date the vessel first departed for the fishing area. Record the two digits representing the day of the month. Record the three letter abbreviation for the month. Fill in the last two digits of the year in the blocks available. For example, September 26<sup>th</sup>, 2001 would be entered as 26 SEP 2001. Use this format for all dates.

**Time:** The time that the vessel first departed for the fishing area.

**Port of Departure:** Print in block letters the name of the port city the vessel departed from, *e.g.* Honolulu, HI If the vessel departs from a port on another island, write which island after the port name. Port Allen, Kauai.

**Date Port Stop:** The date the vessel returned to any port for any reason other than the end of the trip.

**Time:** The time that the vessel returned to port for any reason other than the end of the trip.

**Date Cruise Resumed:** The date that the vessel departed port after an intermittent port stop to resume fishing.

**Time:** The time that the vessel departed port after an intermittent port stop to resume fishing.

**Date Port Stop:** The date the vessel returned a second time to port for any reason other than the end of the trip.

**Time:** The time that the vessel returned to port a second time for any reason other than the end of the trip.

**Date Cruise Resumed:** The date that the vessel departed port after an intermittent port stop to resume fishing.

**Time:** The time that the vessel departed port after an intermittent port stop to resume fishing.

**Arrival Date:** The date the vessel returns to port after completing the fishing trip.

**Time:** The time that the vessel returns to port after completing the fishing trip.

**Port of Arrival:** Print in block letters the name of the port where the vessel ended the trip. If the vessel departs from a port on another island, write which island after the port name. Port Allen, Kauai.

**Operator Name:** Print in block letters: Last name, First name and Middle initial of the person responsible for operation of the vessel. (e.g. Public, John Q.) If the operator doesn't have a middle name, use the initials N.M.I, for No Middle Initial.

### BOTTOMFISH TRIP LOG Example

NWHI BOTTOMFISH OBSERVER PROGRAM

### BOTTOMFISH TRIP LOG

<b>VESSEL NAME</b> <input type="text"/>		<b>PERMIT NUMBER</b> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<b>TRIP NUMBER</b> <input type="text"/> BF <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
<b>DEPARTURE DATE</b> (DATE MON YEAR)		<b>TIME</b>	<b>PORT OF DEPARTURE</b>	
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 20 <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/>	
<b>DATE PORT STOP 1</b>		<b>TIME</b>	<b>DATE CRUISE RESUMED 1</b>	<b>TIME</b>
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 20 <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 20 <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>DATE PORT STOP 2</b>		<b>TIME</b>	<b>DATE CRUISE RESUMED 2</b>	<b>TIME</b>
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 20 <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 20 <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
<b>ARRIVAL DATE</b>		<b>TIME</b>	<b>PORT OF ARRIVAL</b>	
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> 20 <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/>	
<b>OPERATOR NAME</b> <input type="text"/>				

VER 3/03

## BOTTOMFISH PROTECTED SPECIES LOG

### INTRODUCTION and GENERAL INSTRUCTIONS

The **Protected Species Log** is used to record observed occurrences of sea turtles, marine mammals, and seabirds that come within **100m** of the vessel. This form should be filled out if fishing operations were being conducted or not. Documentation of protected species involvement with bottomfishing operations is an important part of managing the fishery.

► Do not allow watching for distant (>100m) protected species to interfere with observing fishing operations or vessel activity.

This form can be used to document and describe the occurrence of as many as three species of animals. If more than one protected species or several individuals of the same protected species are seen, but not as a group, their presence should be treated as separate events. In this case, complete a separate data form with a unique event number for each cohesive group of animals. If the event involves more than three species, use additional forms as needed. In this case, record the **same** event number on each additional form.

Animals that are observed in the following activities are recorded on this form.

- Swimming near vessel or gear, especially during fishing operations.
- Stealing catch or bait
- Entangled or hooked
- Injured, killed or already dead.

Staff from the PIAO and Honolulu Laboratory will review the data from this form and classify the events described.

### DATA ELEMENTS

**Trip Number:** The unique six digit number assigned by the Operations Coordinator. In the first two blocks, record **BF** for Bottomfish, then fill in the remaining blocks with the trip number.

**Event Number:** The consecutive two digit number corresponding to the protected species event. An event is recorded **whenever a protected species is observed within 100m of the vessel**. Begin with 01 on each observed trip.

**Date:** The date of the event or incident.

**Time Begin:** Record the time the event begins. If you observe the animal contact the gear or hooked catch, record the time of contact in the Narrative section.

**Time End:** Record the time when the event ends. Must be different than Time Begin.

**Latitude/Longitude:** The position of the vessel at the time of the sighting. Record the degrees, minutes, and tenths of a minute of latitude and longitude.

**Vessel Activity:** Record the activity of the vessel at the time of the event. Fishing means that gear is in the water.

- **1 - Fishing at anchor.** The vessel is bottomfishing while anchored to bottom.
- **2 - Drift fishing.** Vessel fishing while not anchored to bottom. If a drogue or sea anchor was deployed, select this choice, and record it in the comment section.
- **3 - Trolling.** (gear is in the water)
- **4 – Running /Searching.** The vessel is traveling and not trolling.
- **5 - Other.** Any vessel activity not described above. Describe in the Narrative section of form.

**Deterrents:** Record the number that describes actions undertaken by the crew to specifically avoid interactions and to mitigate loss or damage to the catch, gear or vessel by protected species. The Deterrent block must be filled out for every event.

- **1- Move.** The vessel changes its location in order to get away from protected animals that may be damaging or stealing the catch, or protected animals in the vicinity.
- **2- Delay.** The crew cease fishing activity until they believe the protected species have gone. Gear must be out of the water for this deterrent.
- **3- Other.** Any action(s) by the crew outside of normal operations to mitigate damage or loss to the vessel, gear or catch, not described by the first two choices. Describe in the Narrative section.
- **4- None.** No actions undertaken by the crew to mitigate damage or loss to the vessel, gear or catch. Vessel operations continue as normal. If the vessel is not engaged in fishing operations (i.e. no gear in the water), select this choice.

**Gear Contact:** Record the appropriate number choice that describes the type of gear encounter, if any. If an animal becomes both hooked and entangled, record which occurred first, and describe in the Narrative portion of the form. This block must be filled out for every event.

- **1-Hooked.** The animal is hooked deeply or lightly. You must be able to clearly see that the animal is hooked. All hooked animals are considered injured.

- **2-Entangled.** If the animal has any portion of the gear wrapped or twisted around any body part, and not hooked, the animal is considered entangled. If the animal is landed or pulled near the vessel so the crew can attempt to free it; the animal should be considered injured.
- **3-Both.** The animal was observed to be both entangled and hooked.
- **4-Contact.** The animal was observed to only come into contact with any portion of the gear, or hooked catch, and not become entangled or hooked.
- **5-None.** The animal did not observed making contact with fishing gear. For instances when no fishing gear is in the water, the Gear Contact code must be 5.

**Distance to Vessel:** Record in meters, the closest distance any animal species involved came to the vessel during the time of the sighting or interaction. If distance recorded is greater than 100m, vessel activity must be 4 or 5.

**Distance to Gear:** Record in meters, the closest distance any animal species involved came to the gear during the time of the sighting or interaction. **Note:** If animal touches gear, enter 001. During fishing operations (i.e. vessel activity codes 1-3) this distance should not be greater than 100. If gear is not in the water at the time of the event, enter 999. If the distance to gear is 999, the Gear Encounter block must be 5.

**Species Name:** Record the common name of the first species observed. If this is not known, print "unidentified" coupled with the closest taxonomic classification you are certain of, e.g. unidentified cetacean.

**Species Code (SP. CODE):** Record the three digit Species Code.

**Best Estimate:** Record your best estimate of the number of individuals of each species present, use leading zeros.

**High:** Record the high estimate of the number of individuals of this species present, use leading zeros. If there is a single animal, record 001 for the high number.

**Low:** Record the low estimate of the number of individuals of this species present, use leading zeros. If there is a single animal, record 001 for the low number.

**Injured:** Record the number of individuals of this species that are injured. Only count injuries that were received during the observed event. If animal(s) are not injured during the event, enter 00 in the spaces provided. Describe in the Narrative section the nature of the injuries.

**Dead:** Record the number of incidentally killed animals. Describe in the Narrative section how the animal was killed. If no animal(s) were observed killed during the event, enter 00 in the spaces provided.

**Carcass:** Record the number of animals that died prior to the initial observation. If no animal carcasses are observed, enter 00.

**List Identifying Characteristics:** List the characteristics that led to your identification of this species.

**Sketch Identifying Characteristics:** Sketch the animal using the **identifying characteristics you observed** to make your species identification.

**Narrative:** Describe concisely the behavior of the animals before during and after the event. Thoroughly describe any deterrents employed by the crew. Indicate any photos taken, and the camera number. Include times of particular events, or observations. Use this section to explain any information that you think could not be adequately documented in the coded information in the header portion of the form.

## Species 2

**Species Name:** Record the common name of the first species observed. If this is not known, print "unidentified" coupled with the closest taxonomic classification you are certain of, *e.g.* unidentified cetacean.

**Species Code (SP. CODE):** Record the species code. Use the list in the back of the field manual.

**Best Estimate:** Record your best estimate of the number of individuals of each species present, use leading zeros.

**High:** Record the high estimate of the number of individuals of this species present, use leading zeros. If there is a single animal, record 001 for the high number.

**Low:** Record the low estimate of the number of individuals of this species present, use leading zeros. If there is a single animal, record 001 for the low number.

**Injured:** Record the number of individuals of this species that are injured. Do not count scars or injuries that were not received during the observed event. If animal(s) are not injured during the event, enter 00 in the spaces provided. Describe in the Narrative section the nature of the injuries. This element must be filled in for every event.

**Dead:** Record the number of incidentally killed animals of this species. If no animal(s) are killed during the event, enter 00 in the spaces provided. Describe in the Narrative section how the animal was killed. This element should be filled in for every event. Use leading zeros.

**Carcass:** Record the number of animals that died prior to the initial observation. If no animal carcasses are observed, enter 00.

**List Identifying Characteristics:** List the characteristics that led to your identification of this species.

**Sketch Identifying Characteristics:** Sketch the animal using the **identifying characteristics you observed** to make your species identification.

**Narrative:** Describe concisely the behavior of the animals before during and after the event. Thoroughly describe any deterrents. Indicate any photos taken, and the camera number. Include times of particular events, or observations. Use this section to explain any information that you think could not be adequately documented in the coded information in the header portion of the form.

### Species 3

**Species Name:** Record the common name of the third species observed. If unknown, print "unidentified" coupled with the closest taxonomic classification you are certain of, *e.g.* unidentified cetacean.

**Species Code (SP. CODE):** Record the species code. Use the list in the back of the field manual.

**Best Estimate:** Record your best estimate of the number of individuals of each species present, use leading zeros.

**High:** Record the high estimate of the number of individuals of this species present, use leading zeros. If there is a single animal, record 001 for the high number.

**Low:** Record the low estimate of the number of individuals of this species present, use leading zeros. If there is a single animal, record 001 for the low number.

**Injured:** Record the number of individuals of this species that are injured. Do not count scars or injuries that were not received during the observed event. If animal(s) are not injured during the event, enter 00 in the spaces provided. Describe in the Narrative section the nature of the injuries.

**Dead:** Record the number of incidentally killed animals of this species. Describe in the Narrative section how the animal was killed. If no animal(s) are killed during the event, enter 00.

**Carcass:** Record the number of animals that died prior to the initial observation. If no animal carcasses are observed, enter 00.

**List Identifying Characteristics:** List the characteristics that led to your identification of this species.

**Sketch Identifying Characteristics:** Sketch the animal using the **identifying characteristics you observed** to make your species identification.

**Narrative:** Describe concisely the behavior of the animals before during and after the event. Thoroughly describe any deterrents. Indicate any photos taken, and the camera number. Include times of particular events, or observations. Use this section to explain any information that you think could not be adequately documented in the coded information in the header portion of the form.

**BOTTOMFISH PROTECTED SPECIES LOG Example**

**BOTTOMFISH PROTECTED SPECIES RECORD**

<b>TRIP NUMBER</b>		<b>DATE (DATE MON YEAR)</b>		<b>PAGE #</b>		<small>FOR OFFICE USE ONLY</small> <b>RANK</b> <input style="width: 20px; height: 20px;" type="text"/>	
<input style="width: 20px; height: 20px;" type="text"/> B	<input style="width: 20px; height: 20px;" type="text"/> F	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/> 2	<input style="width: 20px; height: 20px;" type="text"/> 0	<input style="width: 20px; height: 20px;" type="text"/>	
<b>TIME BEGIN</b>		<b>TIME END</b>		<b>LATITUDE</b>		<b>LONGITUDE</b>	
<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<sup>0</sup> <input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	N
<b>VESEL ACTIVITY</b>		<b>DETERRENTS</b>		<b>GEAR ENCOUNTER</b>			
<input style="width: 20px; height: 20px;" type="text"/>	1. FISHING AT ANCHOR 2. DRIFT FISHING 3. TROLLING	<input style="width: 20px; height: 20px;" type="text"/>	4. RUN / SEARCH 5. OTHER	<input style="width: 20px; height: 20px;" type="text"/>	1. MOVE 2. DELAY	<input style="width: 20px; height: 20px;" type="text"/>	3. OTHER 4. NONE
<input style="width: 20px; height: 20px;" type="text"/>	1. HOOKED 2. ENTANGLED	<input style="width: 20px; height: 20px;" type="text"/>	3. BOTH 4. CONTACT	<input style="width: 20px; height: 20px;" type="text"/>	5. NONE		
<b>DISTANCE TO VESSEL</b>		<b>DISTANCE TO GEAR</b>					
<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>				
<b>SPECIES NAME</b>				<b>SP. CODE</b>			
<input style="width: 100%; height: 20px;" type="text"/>				<input style="width: 20px; height: 20px;" type="text"/>			
<b>BEST ESTIMATE</b>		<b>HIGH</b>		<b>LOW</b>		<b>INJURED</b>	
<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>	<input style="width: 20px; height: 20px;" type="text"/>
<b>IDENTIFYING CHARACTERISTICS:</b>				<b>SKETCH IDENTIFYING CHARACTERISTICS</b>			
<input style="width: 100%; height: 100%;" type="text"/>				<input style="width: 100%; height: 100%;" type="text"/>			
<b>NARRATIVE</b>							
<input style="width: 100%; height: 100%;" type="text"/>							

## **BOTTOMFISH GEAR AND CATCH LOG**

### **INTRODUCTION and GENERAL INSTRUCTIONS**

The Catch Log is a two part form. The top portion is a description of the fishing location and fishing gear. The bottom portion is a record of the catch and disposition. The data are used to determine fishing effort, success rates for target species and the catch rates of non-target species in the fishery. Use this form to record fish caught with bottomfishing gear, *palu ahi*, *ika shibi* or sharkline on this form.

Use the common names from the Species Code list for the fish caught.

The sum of individuals in the disposition categories should equal the total catch for the station. If more fish are caught than there are lines on the form, continue on the bottom portion of another Gear and Catch Data form; filling out only the trip number, date and station number blocks.

When crew members are preparing to cut off a fish (e.g. a shark) before it is brought to the surface, ask to see what species is on the line before it is cut. This request needs to be made each time a leader is going to be cut whenever the catch is not visible. If your request is denied, document each incident.

### **DATA ELEMENTS**

**Begin Search:** Record the time the vessel began searching for a place to begin bottomfishing operations. Do not include time spent running to a spot, unless they are searching along the way. If the vessel operator announces their intention to look around for fish sign, then record that time. Vessels may routinely examine an area in order to locate schools of fish. Record the time in the 24 hour format.

**End Search:** Record the time when the searching ended. This could be the same as the start time. Record the time in the 24-hour format.

**Trip Number:** The number assigned by the Operations Coordinator. In the first two blocks, record **BF** for bottomfish, fill in the rest with the trip number.

**Date:** Record the date bottomfishing began.

**Station Number:** Each time fishing occurs (*i.e.* a drop) at a location, it is considered a station. Stations are numbered consecutively each day beginning with 01.

- ▶ When the vessel anchors to fish a location, all fishing (*i.e.* all drops) are considered as part of the fishing at that station.

► When the vessel is drift fishing over the same location or structure, each pass should be counted as a separate station.

► Once a pass lasts over 15 minutes or the vessel drifts over .25mi from the initial start location, start a new station. (see instructions for Station Type 3)

**Beaufort (Beau.):** Enter the appropriate number from the Beaufort Scale that best indicates the sea conditions when fishing operations begin at a particular station.

**Protected Species (P.S.):** A **Y** or **N** to indicate if any protected species were observed at this station. If **Y**, fill out a Protected Species Sighting and Interaction Record describing the event. Leaving this block blank on the form, will default to No.

**Station Type:** Enter a **1**, **2**, or **3** in the block to indicate the type of station. **1.** Anchor station means the vessel deployed an anchor on the bottom in order to fish on a spot. **2.** Drift station means the vessel was not connected to the bottom while fishing at a spot. **3.** Continued drift (Cont. Drift) is used for drifts that lasted more than 15 minutes or covered more than .25nmi.

**Target Species:** Enter the species code for the target species of each particular station.

# **Lines:** Enter the number of lines (or rigs) fished at the station.

**Line (Rig) Material:** Enter the appropriate code from the that describes the rig. Ask the operator for this information.

**Rig Line Test:** Record the breaking strength, in lbs, of the rig line. Ask the vessel operator for this information.

**Hook Leader Material:** Enter the appropriate code from that describes the hook leader material. The leader is the line that is directly attached to the hooks.

**Hook Leader Test (LDR Test):** Record the breaking strength, in lbs, of the hook leader. Ask the vessel operator for this information.

**Hooks Maximum:** Record the maximum number of hooks fished per line (or rig). If the fishing rigs have different numbers of hooks, record the highest number of hooks fished on any line (or rig).

**Hooks Minimum:** Record the minimum number of hooks fished per line (or rig). If the fishing rigs have different numbers of hooks, record the lowest number of hooks fished on any line (or rig).

**Hook Type:** Enter the appropriate number code that describes the predominant style of hook used. If hook type is 3. Other; describe, draw & trace the hook type in the comment section.

**Size:** Record the size number of the hooks used. Disregard “ought” designations, e.g. nine-ought (9/0) is recorded as 09. Ask the vessel operator or check hook packages/boxes for the size.

**Weight Size (WT Size):** Record the size, to the nearest whole lb, of the weights attached to the main lines. Ask the operator or check the weights to see if they’re marked. Use leading zeros, if necessary. Typically these weights range in size from 5-6 lbs. If the rig has two weights, record the total weight. Example: a five lb. weight would be recorded as 05.

**Bait Type:** Enter the appropriate number code that describes the predominant type of bait used. Cut bait (2) is chunks of fish used as bait. If squid are used, whole or cut, the bait type is 1. If bait type is 3. Other; describe the bait in the comment section.

**Chum Type:** Enter the appropriate number code from the choices that describes the predominant type of chum used. If chum type is 3. Other; describe the chum in the comment section.

**Shark Line:** A Y or N answer to the question: Was a line deployed during bottomfishing operations to distract sharks from the bottomfishing gear and catch at this station? If yes, then record the start and end times in the comment section on the back of the form. If the line in question does not have a hook on it, it is considered an “unarmed” shark line. Record and clearly label data from anything caught on the shark line on the back of the form, towards the end. These data will be entered on a separate screen on the computer.

**Start Time:** Record the time fishing operations began (when the first rig hits the water).

**End Time:** Record the time fishing operations ended (when the last rig comes out of the water).

**Start Depth:** Record the depth of the water in meters (m) at the beginning of fishing operations at the station. Get this information from the vessel operator or depth sounder. If the depth is given in units other than meters (e.g. feet or fathoms), write down the units given in the Comment section, and then convert. Your conversion calculations will be considered part of the data you collected. Remember these conversions: 1 fathom= 6ft, and 1m = .55 fathoms.

**End Depth:** Record the depth of the water in meters (fm) at the end of fishing at the station. Get this information from the vessel operator or depth sounder. If the depth is given in units other than meters (e.g. feet or fathoms), write down the units given in the Comment section, and then convert. Your conversion calculations will be considered part of the data you collected. Remember these conversions: 1 fathom= 6ft, and 1m = .55 fathoms.

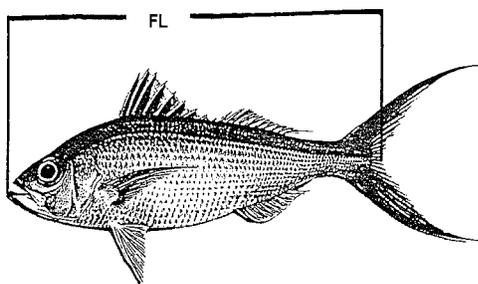
**Latitude:** Record the latitude of the vessel's coordinates at the beginning of fishing operations at the station. Record the degrees, minutes and tenth's of a minute. Get the coordinates from the vessel operator or the GPS unit. Use leading zeros, if necessary.

**Longitude:** Record the longitude of the vessel's coordinates at the beginning of fishing operations at the station. Record the degrees, minutes and tenth's of a minute. Get the coordinates from the vessel operator or the GPS unit. Use leading zeros, if necessary.

**Species:** Record the common name of the species caught. If more space is needed to record the catch data use an additional form. Make sure to transfer the trip, date, and station no. on the the form.

**Code:** Enter the three digit species code from the Species Code list for all fish. Note: There are different codes for unidentified and other identified animals. Unidentified= fish that are unidentified due to being rare, unknown or too damaged for identification. Other Identified= fish that are identified, but do not have a species code number assigned to them. Take photos of all unidentified species or other identified species.

**Fork Length (FL) :** Record the fork length of the fish to the meters **0.1 cm**. For fish that do not have a forked caudal fin, (e.g. Hapu'upu'u) measure from the tip of the lower jaw (with the mouth closed) to the middle of the edge of the caudal fin. Refer to the diagrams below for clarification.



### Fork Length Diagrams

(\*fork lengths should be taken with the mouth of the fish closed.)



**BOTTOMFISH GEAR & CATCH LOG Example**



## TROLL LOG

### INTRODUCTION and GENERAL INSTRUCTIONS

The Trolling Log form used to summarize trolling effort and catch composition. Vessels will generally troll during transit to and from the fishing grounds, and when traveling between fishing locations.

### DATA ELEMENTS

**Trip Number:** Write in the trip number, beginning with **BF**. The rest of the blocks should be filled in with the trip number assigned by the Operations Coordinator.

**Date:** The date of the trolling effort. Record two digits representing the day. Record the three letter abbreviation of the month. Fill in the last two digits of the year in the blocks available.

**Troll No.:** A two digit number indicating a distinct period of trolling effort. Number each trolling effort consecutively for each trip, starting with 01. If the vessel stops to land a fish and then continues trolling, the Troll number should not change.

**Protected Species (PS) :** A **Y** or **N** to indicate if any protected species were observed during the trolling effort. If Yes, fill out a Protected Species Record describing the event. Leaving this block blank will default to No.

**Beaufort (BFT):** Enter the appropriate number from the Beaufort Scale (0-10) that best indicates the sea conditions when trolling effort began.

**Start Time:** The time the troll effort started. Record the time in the 24 hour format. Use Hawaiian Standard Time.

**End Time:** The time the troll effort ended. Record the time in the 24 hour format. Use Hawaiian standard Time.

**Latitude:** Record the latitude of the vessel's coordinates at the beginning of fishing operations at the station. Record the degrees, minutes and tenth's of a minute. Get the coordinates from the vessel operator or the GPS unit. Use leading zeros, if necessary.

**Longitude:** Record the longitude of the vessel's coordinates at the beginning of fishing operations at the station. Record the degrees, minutes and tenth's of a minute. Get the coordinates from the vessel operator or the GPS unit. Use leading zeros, if necessary.

**No. Lines:** Record the number of lines with lures trolled.

**Species:** Write the common name of the species caught. If more space is needed to record the data, use another Troll Log marked with the same Troll No., Date and Trip No. Make sure to indicate that the sheet is an additional data form.

**Code:** Enter the three digit species code from the Species Code List for all fish. Note: if there is an “unknown” (i.e. something comes off the hook before you could identify it) record this in the Comments section on the back of the form.

**Fork Length (FL):** Record the fork length of the fish, the nearest **0.1 cm**. Refer to diagrams on page 29 of this manual for clarification.

**Disposition:** Indicate the condition and fate of all individuals by recording the number of individuals in each of the following categories:

⇒ **Kept** - fish kept by the vessel for sale or consumption. If any part of a fish or shark is retained, the animal is considered kept.

⇒ **Returned** - Individuals of any species returned to the environment, retained by the observer for processing, or that come free of the gear.

**Alive** - Alive indicates that the fish swam away when released from the gear. Describe fish released with visible damage, from landing or other animals.

**Dead** - Dead indicates that the animal does not swim away after release from the gear. There is no visible muscular activity and the animal may be stiff or limp (freshly dead).

**Unknown** - The animal was returned but the observer is unable to determine whether it was alive or dead. Describe all animals returned to the sea in an unknown condition.

**Damage:** Make an entry if you observed any damage on the fish by sharks, marine mammals, or other animals **before removal from the gear**. Do not consider damage caused by efforts to land the fish. Leaving this field blank indicates no observed damage. Damage notes will be entered into the computer. Use the back of the form if you need more room.

Use these codes: MS = Monk seal    ST = Shark, tail  
                          CT = Cetacean      SH = shark, head left

**Notes:** Use this section to describe damaged animals, animals with unknown disposition, tag information, photo frame numbers, and other information of the catch. Continue on the back if you need more room.





## BOTTOMFISH SPECIES CODE LIST

<b>Fish (Ia) 100 - 305</b>		
<u>Common Name</u>	<u>Scientific Name</u>	<u>Species Code</u>
<b>Balistidae-Triggerfishes</b>		
Triggerfish, unidentified	Balistidae	150
<b>Berycidae-Alfonsins</b>		
Alfonsin	<i>Beryx spp.</i>	131
<b>Bramidae-Pomfrets</b>		
Pomfret, Sickle	<i>Teractichthys steindachneri</i>	185
Pomfret, Lustrous	<i>Eumegistus illustrus</i>	186
<b>Carangidae-Jacks</b>		
Akule (Bigeye mackerel scad)	<i>Selar crumenophthalmus</i>	172
Opelu (Mackerel scad)	<i>Decapterus spp.</i>	173
Kahala (Greater Amberjack)	<i>Seriola dumerili</i>	175
Kahala (Almaco Jack)	<i>Seriola rivoliana</i>	176
Rainbow runner (Kamanu)	<i>Elagatis bipinnulatus</i>	177
Yellowtail	<i>Seriola lalandi</i>	178
Ulua, Barred (Barred jack)	<i>Carangoides ferdau</i>	166
Ulua, Black (Gunkan)	<i>Caranx lugubris</i>	163
Ulua, Dobe (White tongued jack)	<i>Uraspis spp.</i>	167
Ulua, Kagami	<i>Alectis ciliaris</i>	164
Ulua, Sasa (Bigeye jack)	<i>Caranx sexfasciatus</i>	168
Ulua, Papa (Yellowspot jack)	<i>Carangoides orthogrammus</i>	169
Ulua, Pig lipped (Butaguchi)	<i>Pseudocaranx dentex</i>	161
Ulua, White (Giant trevally)	<i>Caranx ignobilis</i>	162
Ulua, Yellow (Golden trevally)	<i>Gnathanodon speciosus</i>	159
Omilu (Blue finned trevally)	<i>Caranx melampygus</i>	165
Ulua, unidentified	Carangidae	170
White finned trevally	<i>Carangoides equula</i>	181
Lai (Leatherjacket)	<i>Scomberoides lysan</i>	179
<b>Coryphaenidae-Dolphinfishes</b>		
Mahi-mahi (Dolphinfish)	<i>Coryphaena hippurus</i>	218
Pompano dolphinfish	<i>Coryphaena equisetus</i>	219
<b>Gempylidae-Snake Mackerela</b>		
Escolar (Butterfish/Smooth Walu)	<i>Lepidocybium flavobrunneum</i>	191

Oilfish (Walu/Rough Walu)	<i>Ruvettus pretiosus</i>	192
<b>Holocentridae-Soldierfishes &amp; Squirrelfishes</b>		
Menpachi (U'u, Soldierfish)	<i>Myripristis spp.</i>	134
Squirrelfish, Gold-finned	<i>Myripristis chryseres</i>	133
Squirrelfish (Ala'ihī)	<i>Sargocentron spp.</i>	132
<b>Labridae-Wrasses</b>		
Hogfish (A'awa or Table boss)	<i>Bodianus bilunulatus albotaeniatus</i>	154
Hogfish, Deepwater red	<i>Bodianus vulpinus</i>	155
Nabeta (Razorfish)	<i>Xyrichtys spp.</i>	156
Wrasse, Black striped	<i>Coris flavovittata</i>	157
<b>Lethrinidae-Emperors</b>		
Mu (Bigeye emperor)	<i>Monotaxis grandoculis</i>	116
<b>Lutjanidae-Snappers</b>		
Gurutsu (Forktailed snapper)	<i>Aphareus furca</i>	113
Lehi (Bigmouth snapper)	<i>Aphareus rutilans</i>	112
Uku (Green jobfish)	<i>Aprion virescens</i>	111
Ta'ape (Bluestripe snapper)	<i>Lutjanus kasmira</i>	114
To'au (Blacktail snapper)	<i>Lutjanus fulvus</i>	115
<b>Etelinae (a subfamily of Lutjanidae)-Snappers</b>		
Ehu	<i>Etelis carbunculus</i>	102
Gindai (Flower snapper)	<i>Pristipomoides zonatus</i>	103
Kalekale (von Siebold's snapper)	<i>Pristipomoides sieboldii</i>	104
Kalekale, Yellowtail	<i>Pristipomoides auricilla</i>	105
Onaga (Long tailed red snapper)	<i>Etelis coruscans</i>	106
Opakapaka (Pink snapper)	<i>Pristipomoides filamentosus</i>	107
Randall's snapper	<i>Randallichthys filamentosus</i>	108
<b>Mullidae-Goatfishes</b>		
Moana ukali-ulua (Blue saddled)	<i>Parupeneus cyclostomus</i>	141
Weke ula (Orange)	<i>Mulloidichthys pflugeri</i>	143
Kumu (White saddled)	<i>Parupeneus porphyreus</i>	142
Goatfish, unidentified Mullidae		140
<b>Pentacerotidae-Armorheads</b>		
Slender Armorhead	<i>Pseudopentaceros wheeleri</i>	252
<b>Priacanthidae-Bigeyes</b>		
Long-finned Bulleye (Aweoaweo)	<i>Cookeolus japonicus</i>	135
Bigeye, Deepwater (Aweoaweo)	<i>Priacanthus alalaua</i>	136
Bigeye, Hawaiian (Aweoaweo)	<i>Priacanthus meeki</i>	137

Bigeye, unidentified	Priacanthidae	130
<b>Scombridae-Mackerels, Tunas &amp; Seerfishes</b>		
Ahi (Bigeye tuna)	<i>Thunnus obesus</i>	211
Aku (Skipjack tuna)	<i>Katsuwonus pelamis</i>	212
Tombo (Albacore tuna)	<i>Thunnus alalunga</i>	215
Bluefin tuna (N. Pacific)	<i>Thunnus orientalis</i>	214
Kawakawa	<i>Euthynnus affinis</i>	213
Yellowfin tuna	<i>Thunnus albacares</i>	216
Tuna, unidentified	Tunas (tribe: Thunnini)	210
Ono (Wahoo)	<i>Acanthocybium solandri</i>	221
Bullet mackerel	<i>Auxis rochei</i>	222
Frigate mackerel	<i>Auxis thazard</i>	223
Saba (chub mackerel)	<i>Scomber spp.</i>	224
<b>Scorpaeniadae-Scorpionfishes</b>		
Hogo (Big-headed scorpionfish)	<i>Pontinus macrocephalus</i>	245
<b>Serranidae-Basses</b>		
Giant grouper	<i>Epinephelus lanceolatus</i>	242
Roi (Peacock grouper)	<i>Cephalopholis argus</i>	243
Hapu'u pu'u (Hawaiian grouper)	<i>Epinephelus quernus</i>	241
Schlegel's grouper	<i>Caprodon schlegelii</i>	244
<b>Sphyraenidae-Barracudas</b>		
Kawele'a (Heller's barracuda)	<i>Sphyraena helleri</i>	262
Kaku (Great barracuda)	<i>Sphyraena barracuda</i>	263
<b>Tetrodontidae-Pufferfishes</b>		
Puffer, Pelagic	<i>Lagocephalus lagocephalus</i>	261
Puffer, Unidentified	Pufferfishes	260
<b>Istiophoridae-Billfishes</b>		
Hebi (Shortbill spearfish)	<i>Tetrapturus angustirostris</i>	303
Kajiki (Blue marlin)	<i>Makaira mazara</i>	305
Nairagi (Striped marlin)	<i>Tetrapturus audax</i>	302
Sailfish	<i>Istiophorus platypterus</i>	304
<b>Xiphiidae-Swordfish</b>		
Swordfish	<i>Xiphias gladius</i>	301
Billfish, unidentified	Billfishes	300
Fish, unidentified	Osteichthyes	100

Fish, other identified	Osteichthyes	101
<b>Sharks (Manu) 400 - 441</b>		
<b>Alopiidae-Thresher sharks</b>		
Bigeye thresher shark	<i>Alopias superciliosus</i>	424
Common thresher shark	<i>Alopias vulpinus</i>	425
Pelagic thresher shark	<i>Alopias pelagicus</i>	426
<b>Carcharinidae-Requiem sharks</b>		
Bignose shark	<i>Carcharhinus altimus</i>	404
Blacktip shark	<i>Carcharhinus limbatus</i>	406
Blacktip reef shark	<i>Carcharhinus melanopterus</i>	411
Blue shark	<i>Prionace glauca</i>	418
Dusky shark	<i>Carcharhinus obscurus</i>	412
Galapagos shark	<i>Carcharhinus galapagensis</i>	407
Gray reef shark	<i>Carcharhinus amblyrhynchos</i>	408
Oceanic white tip shark	<i>Carcharhinus longimanus</i>	419
Sandbar shark	<i>Carcharhinus plumbeus</i>	405
Silky shark	<i>Charcharinus falciformis</i>	413
Tiger shark	<i>Galeocerdo cuvier</i>	415
White-tip reef shark	<i>Triaenodon obseus</i>	409
<b>Lamnidae-Mackerel sharks</b>		
Great white shark	<i>Carcharodon carcharius</i>	431
Short fin mako	<i>Isurus oxyrhynchus</i>	432
Long fin mako	<i>Isurus paucus</i>	433
Mako, unidentified	<i>Isurus spp.</i>	430
<b>Rhinocodontidae-Whale shark</b>		
Whale shark	<i>Rhincodon typus</i>	441
<b>Sphyrnidae-Hammerhead sharks (Manu kihi-kihi)</b>		
Scalloped hammerhead	<i>Sphyrna lewini</i>	422
Smooth hammerhead	<i>Sphyrna zygaena</i>	423
Hammerhead, unidentified	<i>Sphryna spp.</i>	421
<b>Squalidae-Dogfish</b>		
Shortspine spurdog (dogfish)	<i>Squalus mitsukurii</i>	435
Shark, unidentified		400
Shark, other identified		401

**Rays (Hihi manu) 450 - 459**

**Dasyatidae-Stingrays**

Hawaiian stingray (Lupe)	<i>Dasyatis dipterura</i>	453
Broad (or Brown) stingray	<i>Dasyatis latus</i>	454

**Mobulidae-Manta & Devil rays**

Manta ray (Hahalua)	<i>Manta birostris</i>	455
Japanese devil ray	<i>Mobula japanica</i>	456

**Myliobatidae-Eagle rays**

Spotted eagle ray (Hailepo)	<i>Aetobatus narinari</i>	452
-----------------------------	---------------------------	-----

**Plesiobatidae-Round stingrays**

Deepwater stingray	<i>Plesiobatis daviesi</i>	459
Ray, unidentified	Order: Rajiformes	450
Ray, other identified	Order: Rajiformes	451

**Sea Turtles 500 - 506**

**Chelonidae:**

Green sea turtle (Honu)	<i>Chelonia mydas</i>	502
Hawksbill sea turtle (Honu 'ea)	<i>Eretmochelys imbricata</i>	503
Loggerhead sea turtle	<i>Caretta caretta</i>	504
Olive ridley sea turtle	<i>Lepidochelys olivacea</i>	505
Unidentified hard shell turtle	Chelonidae	500

**Dermochelyidae:**

Leatherback sea turtle	<i>Dermochelys coriacea</i>	506
------------------------	-----------------------------	-----

**Birds (Mano) 600 - 677**

**Diomedidae-Albatrosses**

Black-footed albatross	<i>Phoebastria nigripes</i>	675
Laysan albatross	<i>Phoebastria immutabilis</i>	676
Short-tailed albatross	<i>Phoebastria albatrus</i>	677

**Fregatidae-Frigate birds**

Frigatebird, Great (Iwi)	<i>Fregata minor</i>	612
Frigatebird, Lesser	<i>Fregata ariel</i>	613
Frigatebird, unidentified	<i>Fregata spp.</i>	610

**Laridae-Gulls & Terns**

Noddy, Black (Noio)	<i>Anous minutus</i>	622
Noddy, Brown (Noio)	<i>Anous stolidus</i>	623
Noddy, Gray	<i>Procelsterna cerulea</i>	624

Tern, Gray-backed	<i>Sterna lunata</i>	625
Tern, Sooty	<i>Sterna fuscata</i>	626
Tern, White (Fairy tern)	<i>Gygis alba</i>	627
Tern, unidentified Sterninae		620
<b>Oceanitidae-Storm petrels</b>		
Storm-petrel, unidentified	Oceanitidae	630
<b>Phaethontidae-Tropicbirds</b>		
Tropicbird, Red-tailed	<i>Phaeton rubricauda</i>	642
Tropicbird, White-tailed	<i>Phaeton lepturus</i>	643
Tropicbird, unidentified	<i>Phaeton spp.</i>	640
<b>Procellariidae-Gadfly &amp; Diving petrels</b>		
Petrel, unspecified	<i>Pterodroma spp.</i>	674
Shearwater, Newell's	<i>Puffinus newelli</i>	673
Shearwater, Wedge tailed	<i>Puffinus pacificus</i>	672
Shearwater, unidentified	<i>Puffinus spp.</i>	670
<b>Stercorariidae-Skuas &amp; Jaegers</b>		
Jaeger, Pomerine (Pomerine skua)	<i>Stercorarius pomarinus</i>	652
Jaeger, unidentified	<i>Stercorarius spp.</i>	650
<b>Sulidae-Boobies &amp; Gannets</b>		
Booby, Brown ('A)	<i>Sula leucogaster</i>	662
Booby, Masked ('A)	<i>Sula dactylatra</i>	663
Booby, Red-footed ('A)	<i>Sula sula</i>	664
Booby, unidentified	Sulidae	660
Bird, unidentified	Aves	600
Bird, other identified	Aves	601
<b>Cetaceans 700 - 759</b>		
<b>Balaenidae - "Whalebone" whales</b>		
Bowhead whale	<i>Balaena mysticetus</i>	752
Right whale, North Pacific	<i>Eubalaena japonica</i>	753
<b>Balaenopteridae - Rorquals</b>		
Blue whale	<i>Balaenoptera musculus</i>	756
Bryde's whale	<i>Balaenoptera edeni</i>	757
Fin whale	<i>Balaenoptera physalus</i>	754

Humpback whale (Kohola)	<i>Megaptera novaeangliae</i>	755
Minke whale	<i>Balaenoptera acutorostrata</i>	758
Sei whale	<i>Balaenoptera borealis</i>	759
<b>Delphinidae - Dolphins (Nai'a) &amp; Blackfish</b>		
Bottlenose dolphin	<i>Tursiops truncatus</i>	732
Common dolphin	<i>Delphinus sp.</i>	737
Fraser's dolphin	<i>Lagenodelphis hosei</i>	738
Risso's dolphin	<i>Grampus griseus</i>	739
Rough-toothed dolphin	<i>Steno bredanensis</i>	734
Spinner dolphin	<i>Stenella longirostris</i>	733
Spotted dolphin	<i>Stenella attenuata</i>	735
Striped dolphin	<i>Stenella coeruleoalba</i>	736
Dolphin, unidentified	Delphinidae	730
Killer whale (Orca)	<i>Orcinus orca</i>	747
<b>Globicephalinae (aka Blackfish):</b>		
False killer whale	<i>Pseudorca crassidens</i>	742
Pygmy killer whale	<i>Feresa attenuata</i>	745
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	743
Melon-headed whale	<i>Peponocephala electra</i>	744
Blackfish, unidentified	Delphinidae	740
<b>Physeteridae - Sperm whales</b>		
Sperm whale	<i>Physeter macrocephalus</i>	725
Dwarf sperm whale	<i>Kogia breviceps</i>	722
Pygmy sperm whale	<i>Kogia simus</i>	723
<i>Kogia</i> , unidentified	<i>Kogia spp.</i>	720
<b>Ziphiidae - Beaked whales</b>		
Baird's beaked whale	<i>Berardius bairdii</i>	712
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	713
Tropical bottlenose whale	<i>Indopacetus pacificus</i>	715
Mesoplodont beaked whale	<i>Mesoplodon spp.</i>	714
Beaked whale, unidentified	Ziphiidae	710
Beaked whale,	other identified	711
Whale, unidentified	Cetacean	700
Whale,	other identified	701

**Pinnipeds 900 - 903**

**Phocidae:**

Hawaiian monk seal('Ilio-holo-i-kai)	<i>Monachus schauinslandi</i>	<b>902</b>
Northern Elephant seal	<i>Mirounga angustirostris</i>	<b>903</b>
Pinniped,	unidentified	<b>900</b>
Pinniped,	other identified	<b>901</b>



